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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/673,873	09/30/2003	Sung-Bae Lee	SEC.1084	2344
20987	7590	08/23/2005	EXAMINER	
VOLENTINE FRANCO, & WHITT PLLC			ESTRADA, MICHELLE	
ONE FREEDOM SQUARE			ART UNIT	
11951 FREEDOM DRIVE SUITE 1260			PAPER NUMBER	
RESTON, VA 20190			2823	

DATE MAILED: 08/23/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

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Office Action Summary

Application No.

10/673,873

Applicant(s)

LEE ET AL.

Examiner

Michelle Estrada

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 01 August 2005.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 5-16,23,25 and 27-34 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 6,23,25,28 and 32 is/are allowed.
- 6) ☒ Claim(s) 5,7 and 13 is/are rejected.
- 7) ☒ Claim(s) 8-12,14-16,27,29-31,33 and 34 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|--|
| <p>1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)</p> <p>2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)</p> <p>3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____</p> | <p>4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____</p> <p>5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)</p> <p>6) <input type="checkbox"/> Other: _____</p> |
|---|--|

DETAILED ACTION

The finality of the Office Action mailed 5/17/05 is withdrawn in view of the new grounds of rejection.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 5, 7 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Okada et al. (6,534,397) in view of Kazuhiko (JP60235428), and further in view of Iwasaki et al. (2002/0167013).

Re claim 5, Okada et al. disclose forming an insulation film (13/14/15) on a substrate (11); forming a photoresist pattern (18) on the insulation film (Col. 10, lines 35-40); performing a first etching process (Fig. 2F) comprising etching the insulation film using the photoresist pattern as a mask to form an initial trench (20) in the insulation film (Col. 10, lines 44-50); and subsequently performing a second etching process that is distinct from said first etching process, said second etching process comprising etching the insulation film in which the initial trench (20) has already been formed to thereby enlarge the initial trench (Col. 11, lines 39-45).

Okada et al. do not disclose that said second etching process being a wet etching process.

Kazuhiko discloses forming a hole (7) in a substrate (1) by a dry etching process, and allowing the hole to extend through the substrate by a chemical etching process (wet etching) (See abstract).

It would have been within the scope of one of ordinary skill in the art to combine the teachings of Okada et al. and Kazuhiko to enable the second etching step of Okada et al. to be performed according to the teachings of Kazuhiko because one of ordinary skill in the art would have been motivated to look to alternative suitable methods of performing the disclosed second etching step of Okada et al. and art recognized suitability for an intended purpose has been recognized to be motivation to combine. See MPEP 2144.07.

The combination of Okada et al. and Kazuhiko does not clearly disclose wherein the wet etching is performed immersing the substrate into a bath containing an etching solution.

Iwasaki et al. disclose enlarging the initial trench by immersing the substrate into a bath containing an etching solution (Page 8, Paragraph [0147]).

It would have been within the scope of one of ordinary skill in the art to combine the teachings of Okada et al., Kazuhiko and Iwasaki et al. to enable the wet etching step of the combination to be performed according to the teachings of Iwasaki et al. because one of ordinary skill in the art would have been motivated to look to alternative suitable methods of performing the disclosed wet etching step of the combination and art recognized suitability for an intended purpose has been recognized to be motivation to combine. See MPEP 2144.07.

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Re claim 7, Iwasaki et al. disclose wetting the insulation film with an etching solution that etches an oxide or fluoride (Page 8, Paragraph [0147]).

Re claim 13, Iwasaki et al. disclose wetting the insulation film with an etching solution that etches an oxide or fluoride (Page 8, Paragraph [0147]).

Allowable Subject Matter

Claims 6, 23, 25, 28 and 32 are allowed.

Claims 8-12, 14-16, 27, 29, 30, 31, 33 and 34 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michelle Estrada whose telephone number is 571-272-1858. The examiner can normally be reached on Monday through Friday.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matthew Smith can be reached on 571-272-1907. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 571-272-2800.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Michelle Estrada
Patent Examiner
Art Unit 2823

ME
August 18, 2005